6125 SERIES
FINGERPRINT CHAMBER
OPERATIONS MANUAL

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www.caronproducts.com
service@caronproducts.com

Dear Valued Customer:

Thank you for purchasing CARON Products & Services equipment. We appreciate your business and look forward to being your preferred supplier of controlled environment equipment products in the future.

At CARON, we are committed to continuous quality improvement. Our goal is to supply our customers with highly reliable equipment at a fair price. In order to openly monitor our performance, we would appreciate your feedback on our products and services.

If you have questions, or any suggestions for improvement based on the installation or operation of the equipment you have purchased, please contact our service department at service@caronproducts.com or 740-373-6809.

Thanks again for your business!

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SECTION 1- WARRANTY INFORMATION

Please review this section before requesting warranty service. At CARON, one of our primary goals is to provide customers with high levels of personal service and top quality products, delivered on time, and backed by technical service and support for the life of the product.

Before contacting us for warranty service, please be aware that there are repairs that are not covered under warranty. These include:

1) Calibration of control parameters.
2) Damage resulting from improper use.
3) Service calls for improper installation including electrical service, gas and water supply tubing, gas supplies, room ventilation, unit leveling, or ambient conditions that are out of specification.
4) Customer modifications made to parts or subsystems.
5) Shipping damage either obvious or concealed as a result of freight handling.

WARRANTY DEFINED

Caron Products & Services, Inc. (herein after CARON) hereby warrants that equipment manufactured by CARON is free from defects in materials and workmanship when the equipment is used under normal operating conditions in accordance with the instructions provided by CARON, as follows:

COVERED:

- Parts and labor for a period of one (1) year from date of shipment (first six digits of serial number tag contain date of shipment).
- Any part found defective would be either repaired or replaced at CARON's discretion, free of charge, by CARON in Marietta, OH. Parts that are replaced will become the property of CARON.
- This service includes diagnosis and correction of individual CARON product malfunctions, or failures, and may consist of temporary procedures to be followed by the customer while a permanent solution is sought.
- If CARON factory service personnel determine that the customer's unit requires further service, dependent of the model involved, CARON may, at its sole discretion, provide a service technician to correct the problem, or return the unit to the factory. If a unit is to be shipped back to the factory, CARON will pay all ground shipping charges via UPS or other common carrier.
- CARON will have the right to inspect the equipment and determine the repairs or replacement parts necessary. The customer would be notified, within a reasonable time after inspection, of any costs incurred that are not covered by this warranty prior to initiation of any such repairs.

NOT COVERED:

- Cost of express shipments such as Federal Express, UPS Next Day Air, UPS Second Day Air, or any other express shipment charges.
- Any customer modifications of this equipment, or any repairs undertaken without the prior written consent of CARON, will render this limited warranty void.
- CARON is not responsible for consequential, incidental or special damages. In no event will CARON be responsible for damages more than the price of the product.
- Repairs necessary because of the equipment being used under other than normal operating conditions or for other than its intended use.
- Repair or replacement of parts due to the customer's failure to follow normal maintenance instructions.
- Parts considered consumable such as: light bulbs, filters, gases, etc …
- Damage from use of improper water quality.
- Damage from chemicals or cleaning agents detrimental to equipment materials.
- Force Majeure or Acts of God.

This writing is a final and complete integration of the agreement between CARON and the customer. CARON makes no other warranties, express or implied, of merchantability, fitness for a particular purpose or otherwise, with respect to the goods sold under this agreement. This warranty cannot be altered unless CARON agrees to an alteration in writing and expressly stated herein, shall be recognized to vary or modify this contract.

Ohio Law governs this warranty.

Caron Products & Services, Inc.
PO Box 715 · Marietta, OH 45750
740-373-6809

INTERNATIONAL SYMBOLS AND DEFINITIONS

Help

Information

Warning of hazardous area

Warning of hot surface

Warning of dangerous electric voltage

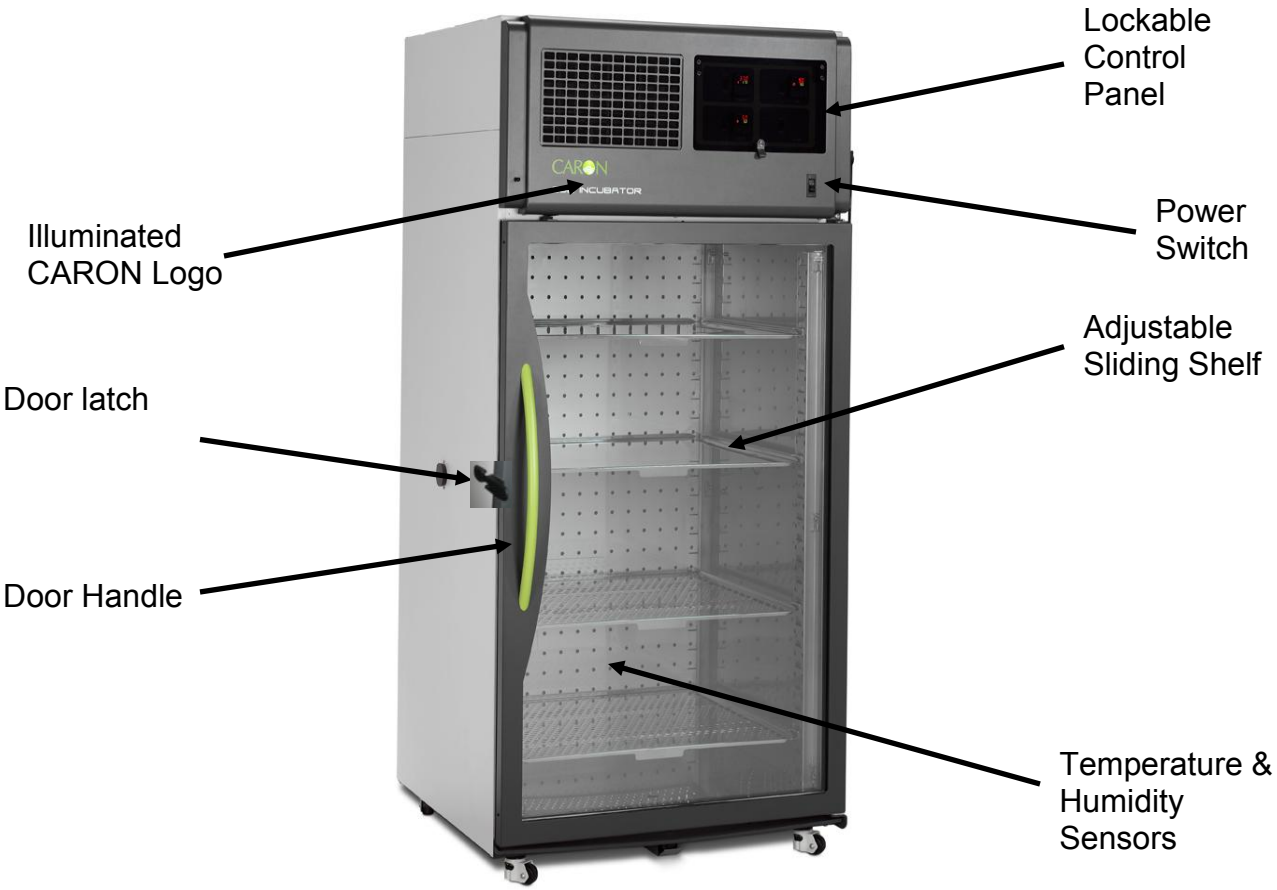
Earth (ground) protective
conductor

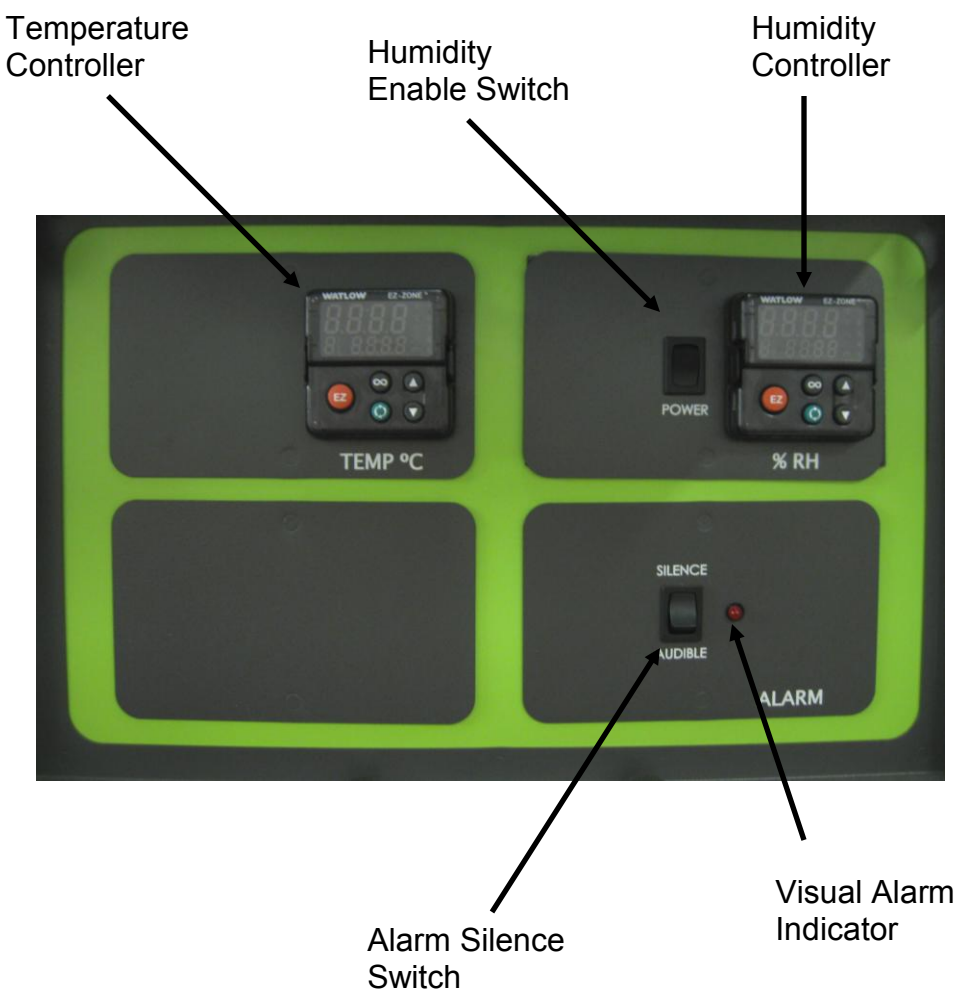
WARNINGS

Local government may require proper disposal

SECTION 2 – EQUIPMENT OVERVIEW

Congratulations! You have just purchased the latest technology in chambers. Before using the equipment, familiarize yourself with key components of the product and thoroughly read this manual.




Temperature Controller
Humidity Enable Switch
Humidity Controller
WATLOW
EZ-ZONE
TEMP °C
POWER
% RH
SILENCE
AUDIBLE
ALARM
Alarm Silence Switch
Visual Alarm Indicator

SECTION 3 -- INSTALLATION

Unpacking

Your new unit has been thoroughly packaged to avoid shipping damage. However, the unit should be fully inspected upon arrival before signing for receipt. If the package has visual damage, notes should be made on the freight bill and signed by the delivery company. In the event of concealed damage after the unit is uncrated, keep the carton and packaging material. Call the shipping company within 7 days of receipt, request inspection and retain a copy of the inspection report.

Choosing a Location

This product weighs in excess of 500 pounds. Ensure that sufficient resources are available to safely move the product.

To ensure proper operation, the unit must be located on a firm level surface, capable of supporting approximately 800 pounds. Allow four inches of clearance on all sides of the product to allow for connections and airflow. Moist air may exhaust out the rear vent.

The unit requires a dedicated electrical connection. Power requirements vary depending upon the chamber model, see Connecting Electrical Power section.
Choose a location where these facilities are, or can be made available. If a water source, or a drain is not available, contact CARON customer service and ask about our CRYS102 product line or click this weblink for information on the product:

http://www.caronproducts.com/65

Installing the Shelves and Hanging Rods

Each fingerprint chamber includes two perforated white coated shelves. Each shelf requires two shelf channels for installation. The left and right shelf tracks are the same. Prior to installation, take time to consider what the size of the product being placed in the chamber will be and set the shelf spacing accordingly. Additional shelving can be purchased through CARON customer service if necessary.

To install the shelf channels insert the rear tab on the shelf channel into the rear wall on the side wall of the chamber. Then insert the front tab into the front pilaster. Push the entire shelf channel towards the rear of the unit and snap it down into place.

Each shelf is capable of supporting a uniformly distributed load of 50 pounds. The maximum chamber capacity is 500 pounds (stationary). Chamber should be empty when being moved.

Do not have multiple loaded shelves out simultaneously or the chamber may tip.

In place of each shelf, hanging rods may be used to hold light-weight items. Slide several clips onto each rod. Then place the rods into the holes in the shelf track.

Leveling the Unit

Place a level on the middle shelf of the chamber. Adjust the feet until the unit sits level left to right and front to back. Even if the unit is level without adjustment, the leveling feet should still be lowered to avoid the cabinet moving while opening and closing the outer door & prevent a flat spot from forming on the casters.

Connecting the Drain Line

When using a pressurized water source, failure to connect the unit to a drain could result in facility flooding.

The chamber drain connection is located in the bottom middle of the back of the chamber. A 3/8” NPT fitting and tubing are supplied in the unit parts kit. Thread the fitting into the drain connection and slide the tubing into the drain connection. Pull on the tubing after installation to make sure it is tight. Route the drain tubing to a local floor drain.

The drain line relies on gravity to remove water from the chamber. The drain line must remain below the chamber to drain properly. Kinks or elevations in the drain line above the cabinet drain will not allow the chamber to drain.

If a local floor drain is not available, a variety of accessories are available through CARON customer service. These accessories can also be viewed at www.caronproducts.com.

Connecting the Water Supply

To ensure proper operation, distilled or deionized water is required as a supply on units that have humidity control. If these water sources are not available contact CARON customer service.

Use only distilled or deionized water with a resistivity between 50KΩ-CM and 1MΩ-CM and a pH of greater than 6.5. Using water outside this range will void your warranty.

Do not use water that contains chloramines. Chloramines can damage internal rubber gaskets resulting in leaks.

A water inlet fitting on the back of the unit and ¼" black tubing are provided to connect the water supply to the chamber. Connect an appropriate water supply to the fitting. Incoming line pressure should be regulated to not exceed 80 psi.

If a Condensate Recirculator water recycling system was purchased as a water supply, refer to its user's manual for proper installation of the water supply.

Connecting Electrical Power

Connect each chamber to a grounded circuit.
Failure to do so could result in electrical shock.

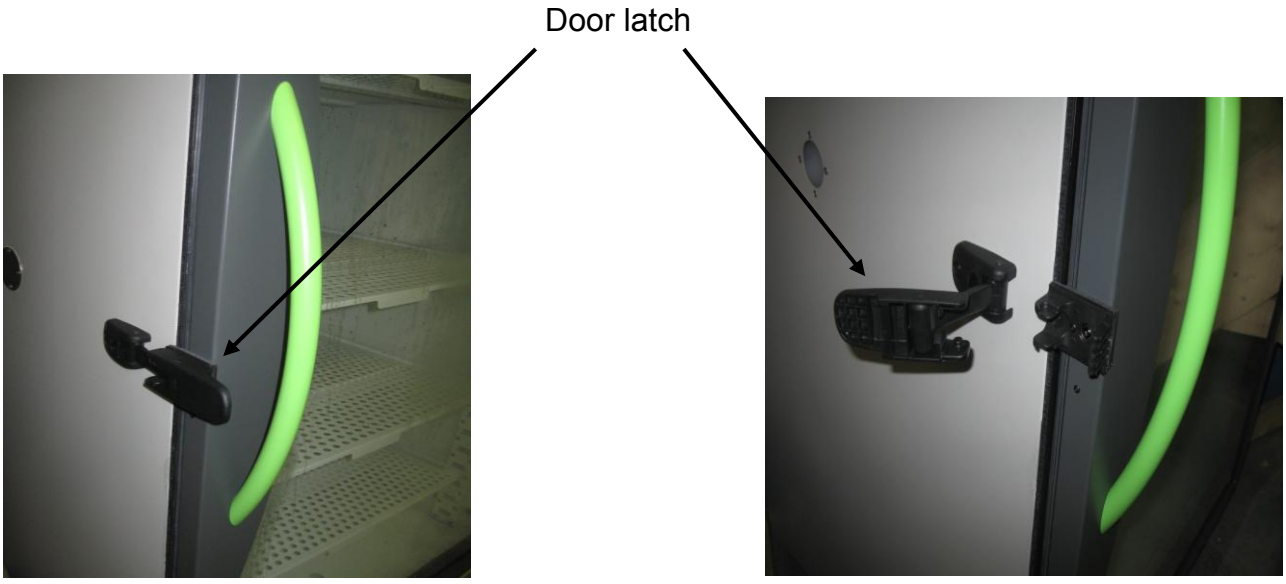
The unit requires a dedicated electrical outlet. See table below for model specific power required and connection.

Model #	Power Requirements	Plug Connection
-2	230V, 60Hz, 10A FLA	NEMA 6-15
-3	230V, 50Hz, 10A FLA	CEE 7/7

When the required electrical connection is available, plug the provided power cord into the unit and the electrical outlet.

Door Latch

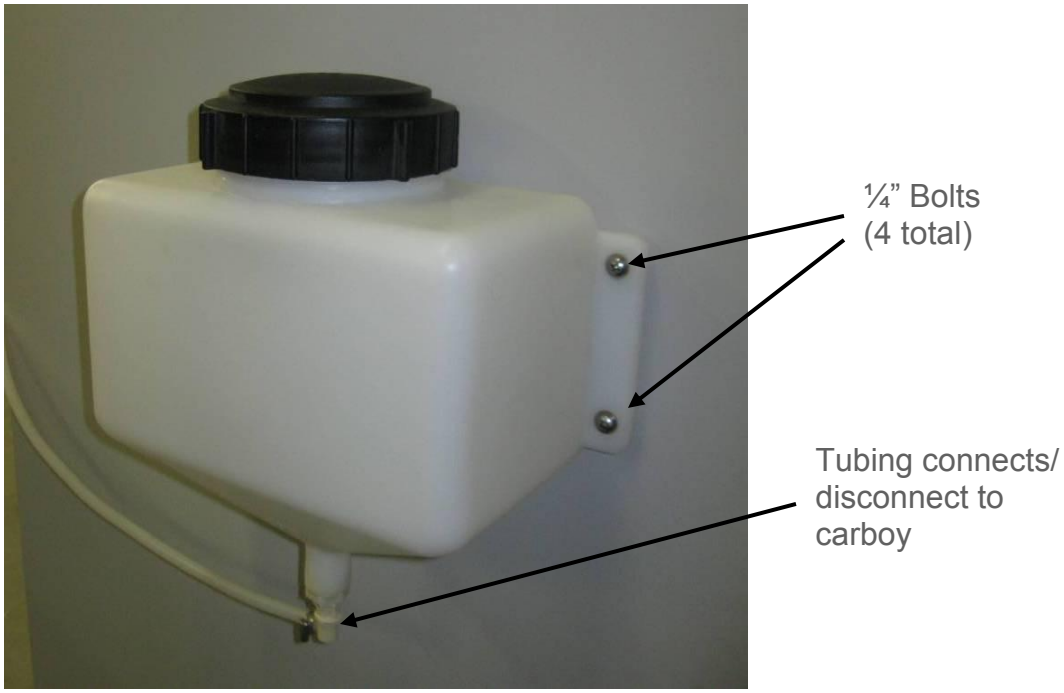
Use the door latch to secure the door tightly in place. To open the door, flip the release lever on the door latch away from the green handle. Once the latch opens up, pull on the green handle to open the door. When closing the door, use the green handle to push the door against the chamber. Then use the latch to secure the door tightly.



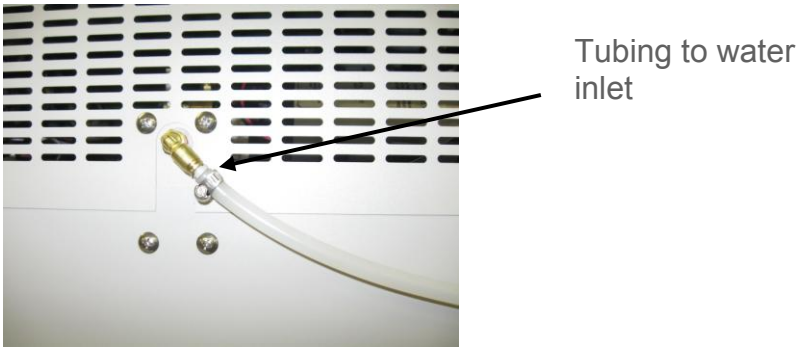
SECTION 4 – ACCESSORY INSTALLATION

Installing Carboy Water System (BOTL301)

The 6125 fingerprint chamber can be purchased with an optional 2.5 gallon carboy water system. The carboy system is preassembled and shipped inside the chamber. The four ¼" bolts required to mount the carboy to the unit will be mounted in the left hand side of the chamber. Remove the carboy assembly from inside the chamber and attach it to the chamber using the ¼" bolts.



Attach the preassembled tubing provided with the carboy to the water inlet on the rear of the chamber.



Fill the carboy with water as described in the "connecting a water supply" section of the manual.

Installing Drain Water Pump (PUMP301)

In applications where a floor drain is not available and a CARON water recycling system is not being used, a drain pump can be purchased to pump any excess condensate from the chamber to a local sink or drain. The pump is located near the middle of the back of the chamber. Connect the supplied tubing from the pump to the sink / drain. The tubing may be run vertically into a ceiling but should not exceed 15 feet height.

SECTION 5 – OPERATION

With the chamber properly installed and the appropriate utilities connected, the power switch on the lower right of the control bezel can be turned on. Within a few minutes, the temperature and humidity will begin to approach set-points. Allow the unit to stabilize for 2 hours before use or prior to making any calibration adjustments.

Changing the Temperature Set-point

To set the temperature set-point, press the UP arrow to increase the temperature set-point by 1°C. Press the DOWN arrow to decrease the temperature set-point by 1°C. Pressing and holding either button will cause the set-point to scroll rapidly in either direction.

To turn off the temperature control system, but still display the chamber temperature, press the EZ button. The words “OFF” will display in the set-point area. To toggle back to controlled temperature, press the EZ button again.

Changing the Humidity Set-point

To set the humidity set-point, press the UP arrow to increase the humidity set-point by 1% RH. Press the DOWN arrow to decrease the humidity set-point by 1% RH. Pressing and holding either button will cause the set-point to scroll rapidly in either direction.

If humidity is not required in the chamber, the RH system can be disabled by turning off the Enable Humidity switch. This will disable the entire RH system including the controller. The system can be turned back on at anytime.

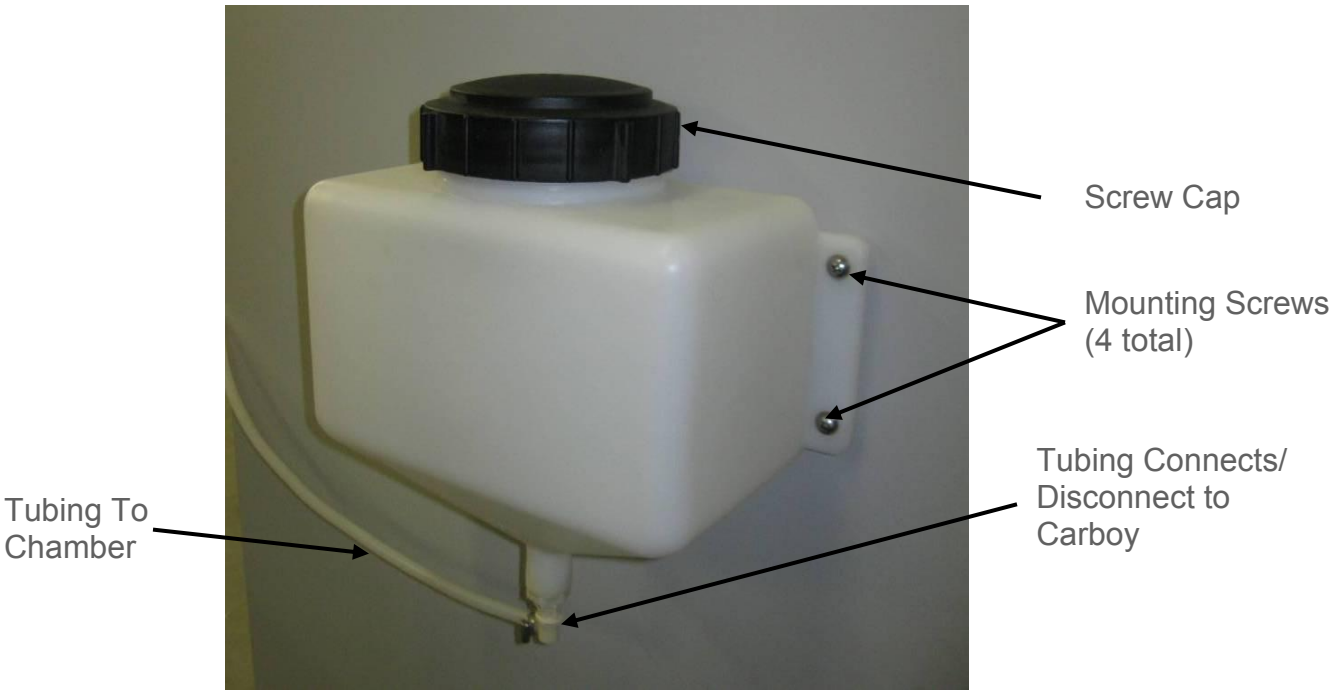
To turn off the humidity control system, but still display the chamber humidity level, press the EZ button. The words “OFF” will display in the set-point area. To toggle back to controlled humidity, press the EZ button again.

SECTION 6 – ACCESSORY OPERATION

Using the Carboy Water System (BOTL301)

To fill the carboy while attached to the chamber, unscrew the cap. Fill carboy with distilled or deionized water (see Connecting the Water Supply section for details). The carboy holds 2.5 liters.

If the carboy must be removed in order to fill it up, first disconnect the tubing between the carboy and chamber by pressing the metal lever at the tubing connects / disconnects at the bottom of the carboy. Then unscrew the four mounting screws and remove the carboy. After re-attaching the carboy, connect the tubing by simply pressing the plastic fittings into each other.



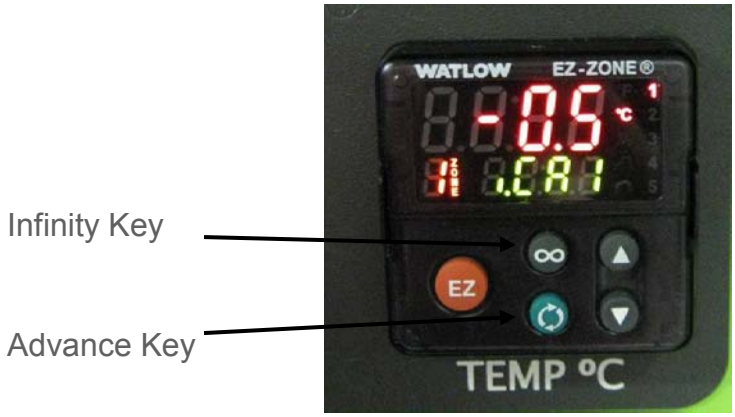
SECTION 7 – CALIBRATION

The temperature and humidity systems can all be calibrated as necessary. CARON recommends an annual calibration check of each system. Before making a calibration adjustment, allow the cabinet to stabilize a minimum of 2 hours. If you do not have the appropriate reference instruments to perform calibration, contact CARON's service department for on-site calibration.

Be sure that all reference instruments are calibrated to an appropriate standard.

Calibrating the Temperature

If temperature calibration is needed, the following steps can be taken:



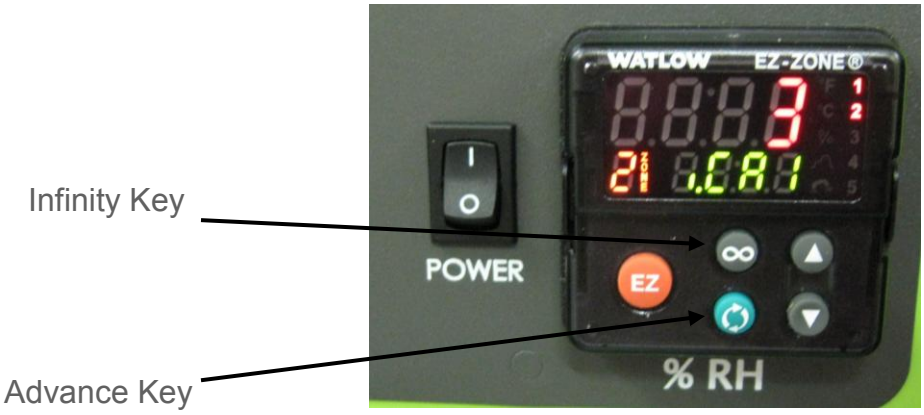
Locate the reference instrument's temperature sensor in close proximity to the cabinet's geometric center. Be sure that the stabilization times described earlier have been satisfied prior to performing calibration. Press the advance key until the green display reads i.CAL (calibrate). Pressing the UP arrow will increase the Temperature calibration offset by 1°C. Pressing the down arrow will decrease the Temperature calibration offset by 1°C. Pressing and holding either button will rapidly scroll the calibration offset. When finished, press the infinity key to return to the main menu.

Temperature calibration example

If the chamber temperature display reads 40°C and the calibrated independent sensor shows 43°C, set the i.CAL offset value to 3°C. If the calibrated independent sensor shows 36°C, then the entered offset should be negative. In this example the required offset to i.CAL would be -4°C.

Calibrating the Humidity

If humidity calibration is needed, the following steps can be taken:



Locate the reference instrument's temperature sensor in close proximity to the cabinet's geometric center. Be sure that the stabilization times described earlier have been satisfied prior to performing this calibration. Press the advance key until the green display reads i.CAL (calibrate). Pressing the UP arrow will increase the Humidity calibration offset by 1%. Pressing the down arrow will decrease the Humidity calibration offset by 1%. Pressing and holding either button will rapidly scroll the calibration offset. When finished, press the infinity key to return to the main menu.

Humidity calibration example

If the chamber temperature display reads 80% and the calibrated independent sensor shows 83%, set the i.CAL offset value to 3.0%. If the calibrated independent sensor shows 74°C, then the entered offset should be negative. In this example the required offset to i.CAL would be -6.0%.

SECTION 8 – ALARMS

Alarm System Overview

The chamber control system is equipped with an alarm system that constantly monitors temperature and humidity to ensure the user is notified if the cabinet goes into an alarm condition. Notification occurs via a RED indicator light and an buzzer. Each alarm condition has been factory programmed to minimize nuisance alarms while maximizing warning time. The following table contains the alarm conditions being checked, the factory default alarm range, the amount of time an alarm must be present to occur (alarm delay), and the message that will be displayed on the individual system controller.

Alarm Description	Alarm Deviation	Alarm Delay	Alarm Message
Temp higher than Set-point	+50°C	15 minutes	Temp Controller – AL.h1
Temp lower than Set-point	-50°C	15 minutes	Temp Controller – AL.L1
RH higher than Set-point	+50% RH	15 minutes	RH Controller – AL.h1
RH lower than Set-point	-50% RH	15 minutes	RH Controller – AL.L1

In the event an alarm occurs, the alarm indicator will illuminate and an audible alarm will occur. To temporarily disable the audible alarm, toggle the alarm audible enable switch to silence. When the alarm condition is corrected both the alarm indicator and the audible alarm will be disabled. Return the alarm switch to audible.

Changing Alarm Set-points

All alarm set-points were preset at the factory to minimize nuisance alarms that could be created as a result of door openings. Alarm set-point defaults are shown in the alarm table earlier in this section. However, alarm set-points can be changed based on individual user requirements. Each of the controllers are programmed in the same manner. Press the advance key on the control system that you are changing until either A.LO1 or A.HI1 is displayed in green. The red displayed value is the deviation from the set-point that will activate the alarm. Press the UP arrow to increase the deviation, press the down arrow to decrease the deviation. Press the Infinity Key to exit.

SECTION 9 – PREVENTATIVE MAINTENANCE

The CARON chamber has been robustly designed to minimize performance problems. However, regular maintenance is very important for continuous trouble free operation.

As a general rule, CARON recommends an annual calibration check of the temperature, and humidity systems. CARON offers a full range of on-site calibration and validation services. We also offer preventative maintenance contracts on our equipment. Contact our customer service department for details or visit us on the web at www.caronproducts.com.

Recommended Daily Maintenance Checks

- ☐ Check the Temperature and humidity displays versus set-points.
- ☐ Check for and correct any alarm condition.

Recommended Monthly Maintenance Checks

- ☐ Check to ensure the drain in the bottom of the unit is draining properly.

Recommended Annual Maintenance Checks

- ☐ Disinfect all interior surfaces with a general purpose laboratory cleaning agent.
- ☐ Perform a complete calibration of the temperature and humidity systems.

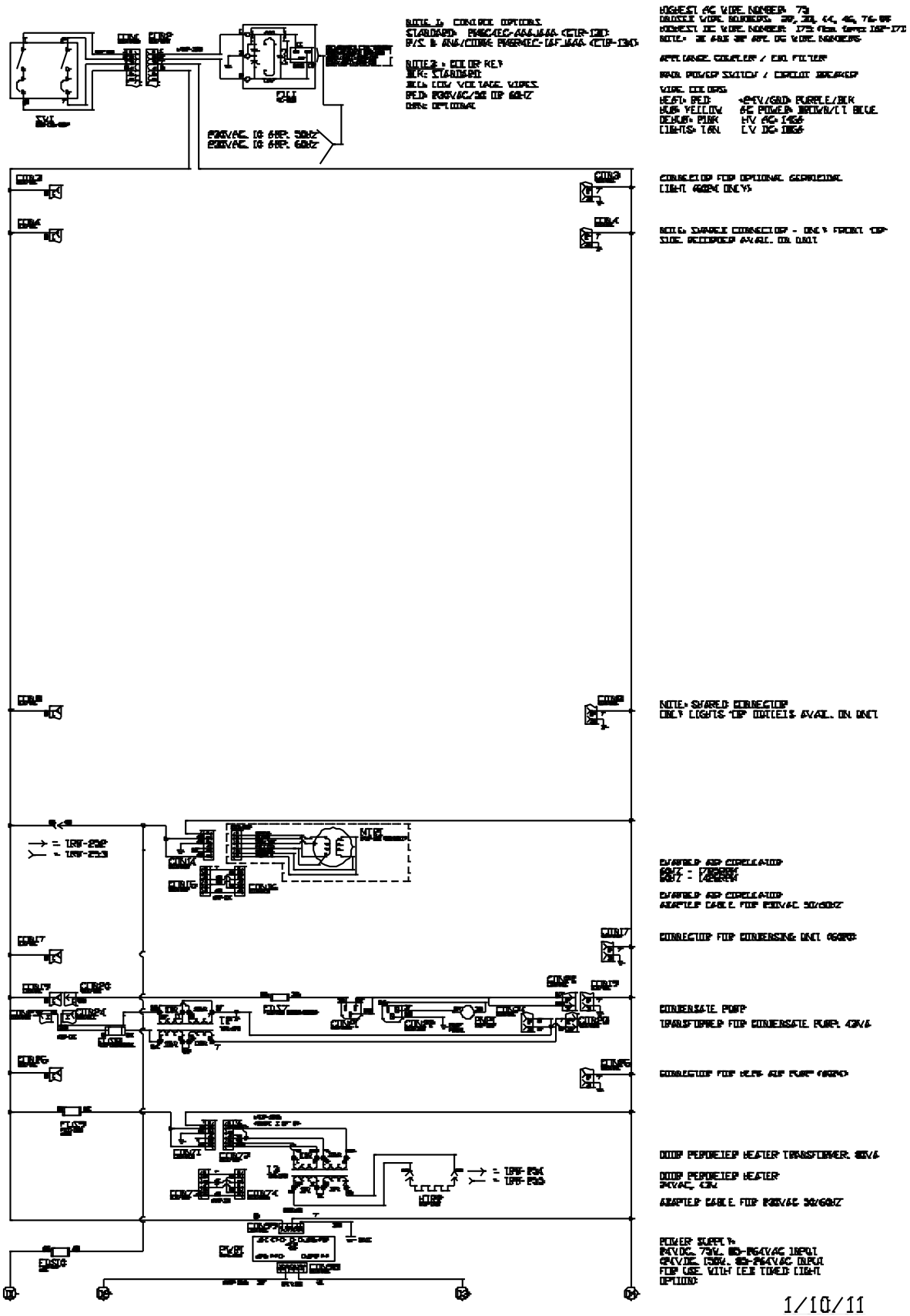
SECTION 10 – SPECIFICATIONS

	6125-2	6125-3
Temperature Range	40°C to 100°C	
Temperature Control	± 0.5°C	
Humidity Range	40 to 80% (up to 80°C)	
Humidity Control	± 3% RH	
Interior Dimensions	32" W x 27" D x 53" H (81cm x 69cm x 134cm)	
Exterior Dimensions	36" W x 33" D x 77" H (90cm x 85cm x 196cm)	
Work Space	25 Cu. Ft. (708 Liters)	
Work Area	14.5 ft^2 (up to 111 ft^2 with (23) additional shelves)	
Electrical	230V, 60Hz, 12A	230V, 50Hz, 12A
Shipping Weight	575 lbs	875 lbs.*

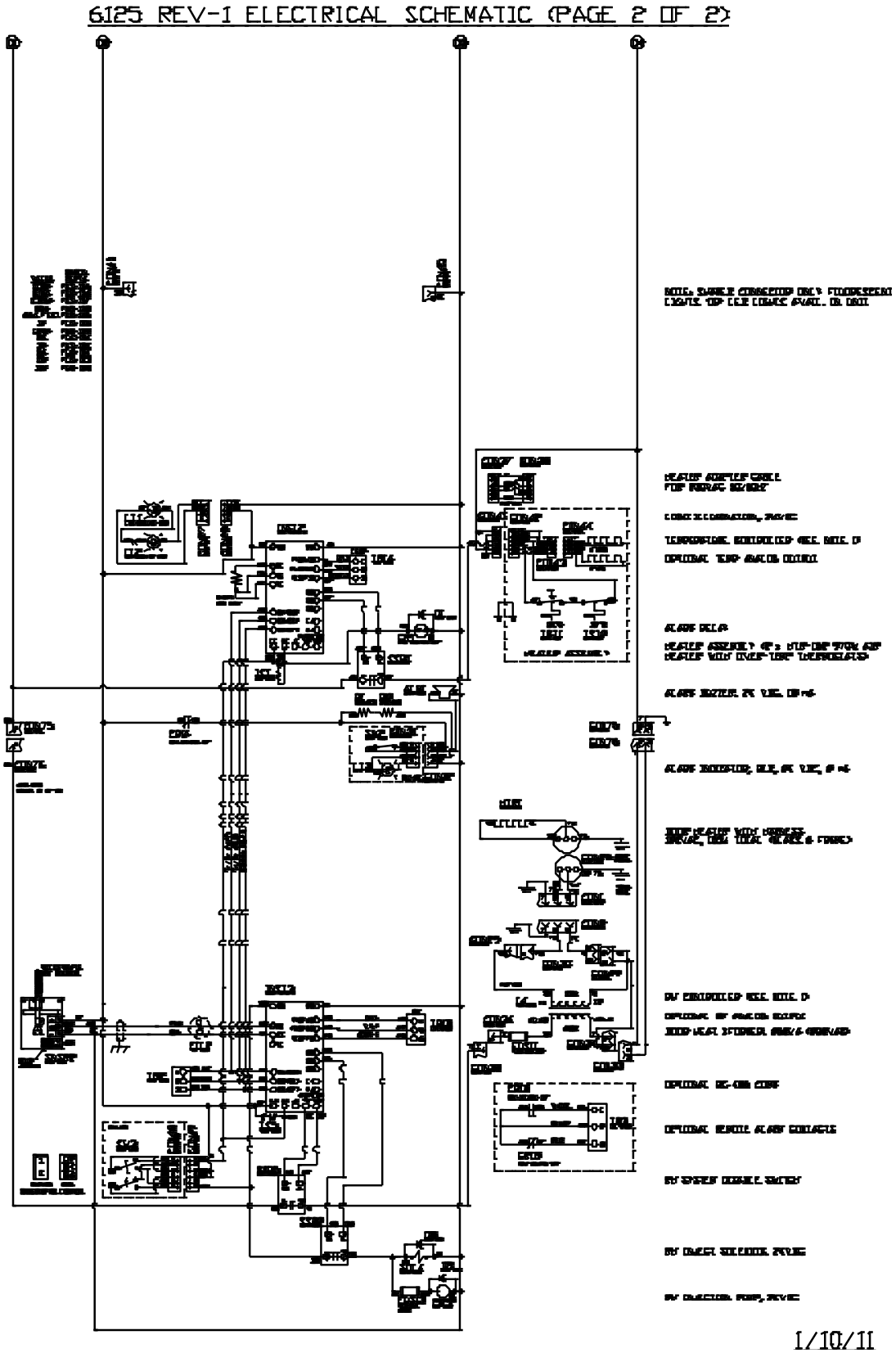
Specifications are subject to change without notice.
**Includes export shipping crate*

SECTION 11 – ELECTRICAL SCHEMATICS

6125 REV-1 ELECTRICAL SCHEMATIC (PAGE 1 OF 2)



SECTION 11 – ELECTRICAL SCHEMATICS (CONTINUED)



SECTION 12 – TROUBLESHOOTING

Problem -- Unit will not turn on

- Is the unit connected to a dedicated electrical circuit as defined in the installation section of the manual?
- Is there power at the electric outlet the unit is plugged into?
- Is the unit's power switch turned on?

Problem -- Unit temperature is above / below temperature set-point

- Has the unit's temperature set-point been recently lowered / raised and if so has the unit been allowed 2 hours stabilize at the new set-point?
- Has the inner door been recently opened for an extended period of time?

Unit humidity level is above / below humidity set-point

- Is the unit connected to a water source as specified in the installation section of the manual?
- Has the unit been leveled to insure the cabinet drain works correctly?
- The cabinet's drain line uses gravity to remove water. Does the drain line have any rises in it above the cabinet's drain level that could be trapping water?
- Has the unit's humidity set-point been recently lowered / raised and if so has the unit been allowed time to stabilize at the new set-point?
- Has the inner door been recently opened for an extended period of time?

SECTION 13 – SPARE / REPLACEMENT PARTS

General

Part Number	Description
MTR-130	Blower Motor
BLW-112	Blower Wheel
CTR-131	Watlow Standard controller
POW-108	24V DC Power Supply

Temperature Related

Part Number	Description
HTR-152	Air Heater
RMT-114	107C Air Heater Thermostat
RMT-116	121C Air Heater Thermostat
RTD-101	Temp Sensor -- RTD 100 Ohm Platinum
REL-103	Heater Solid State Relay

Humidity Related

Part Number	Description
HUM-110	RH Sensor
PMP-150	24VDC RH Pressure Pump
NOZ-101	Precision RH Spray Nozzle
SOL-135	Humidification Solenoid
REL-152	Humidification Solid State Relay
TUB-168	Drain Tubing, Blue, 3/8”
TUB-132	Water Supply Tubing, Black, ¼”

Fuse Related

ID	Description	230V
SW1	Main circuit breaker switch	CBR-115 (10A)
FUS7	Condensate pump fuse	FUS-157 (0.32A)
FUS8	Condensate pump transformer fuse	FUS-157 (0.32A)
FUS9	Door perimeter heater fuse	FUS-158 (0.5A)
FUS10	Air & door heater fuse	FUS-103 (10A)
FUS11	Door heater transformer fuse	FUS-164 (3A)
FUS13	Humidity injection pump fuse	FUS-159 (1.25A)

DECLARATION OF CONFORMITY

Caron Products and Services, Inc.
27640 State Route 7
Marietta, OH 45750 USA

CE 09

Declares that the product:

Designation:	6125 Series
Model Numbers:	6125-2, 6125-3
Classification:	Electrical equipment intended for residential, commercial and lighting industrial environments
Rated Voltage:	220-240 ~ (ac)
Rated Frequency:	50Hz

Meets the essential requirements of the following European Union Directive(s) using the relevant section(s) of the normalized standards and related documents shown:

EMC

EN 61326 (CISPR 11: 2004 Class B) Laboratory Equipment, Immunity Measurement & Control requirements

Performed according to

- EMC Directive 2004/108/EC
- IEC/CISPR 11: 1997, +A1: 1999, +A2: 2002
- EN 55011: 1998, +A1: 1999, +A2: 2002
- FCC CFR47 Part 18

Safety

EN 61010-1 Safety requirements for electrical equipment for measurement, control, and laboratory use part 1: General Requirements

David N. Figel

By: Dave Figel
Engineering/Production Manager
CARON Products & Services, Inc.